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Packaging and the environment — General requirements for the use of ISO standards in the field of packaging and the environment

Emballage et environnement — Exigences générales pour l'emploi des normes ISO dans le domaine de l'emballage et l'environnement

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 18601 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 4, *Packaging and environment*.

Introduction

Packaging plays a critical role in almost every industry, every sector and every supply chain. Appropriate packaging is essential to prevent loss of goods and, as a result, decrease impact on the environment. Effective packaging makes a positive contribution towards achieving a sustainable society by, (e.g.):

a) meeting consumers' needs and expectation for the protection of goods, safety, handling and information;

b) efficiently using resources and limiting environmental impact;

c) saving costs in the distribution and merchandising of goods.

An environmental assessment of packaging may include the manufacturing and distribution system, the wastage of packaging material and goods, the relevant collection systems, as well as recovery or disposal operations. This group of ISO standards and supporting reports provides a set of procedures which aim to:

d) reduce environmental impact;

e) support innovation in products, packaging and the supply chain;

f) avoid undue restrictions on the use of packaging;

g) prevent barriers and restrictions to trade.

Packaging is designed to provide a number of functions for users and producers such as: containment, protection, information, convenience, unitization, handling, delivery or presentation of goods. A major role of packaging is prevention of damage to or loss of goods. (See Annex A for a list of the functions of packaging.)

ISO 18601 defines the interrelationships within the family of ISO standards which cover the environmental impact of packaging throughout its life cycle (see Figure 1). These standards will help define whether the selected packaging can be optimized and whether the packaging needs to be modified to ensure it can be reused or recovered after use.

Demonstration that the requirements of these standards are met can be performed by a first party (manufacturer or supplier), a second party (user or purchaser), or by the support of a third party (independent body).

Public claims on the environmental attributes of packaging may be addressed by different methods. Some of these are technical aspects on reuse or recovery, others relate to access by the population to reuse or recovery systems or the amount of packaging placed on the market for recovery. This series of standards addresses the technical aspects of the packaging. It does not address the requirements of ISO 14021 needed to support a claim or label.

This International Standard does not use the term "and/or" but, instead, the term "or" is used as an inclusive disjunction, meaning one or the other or both.

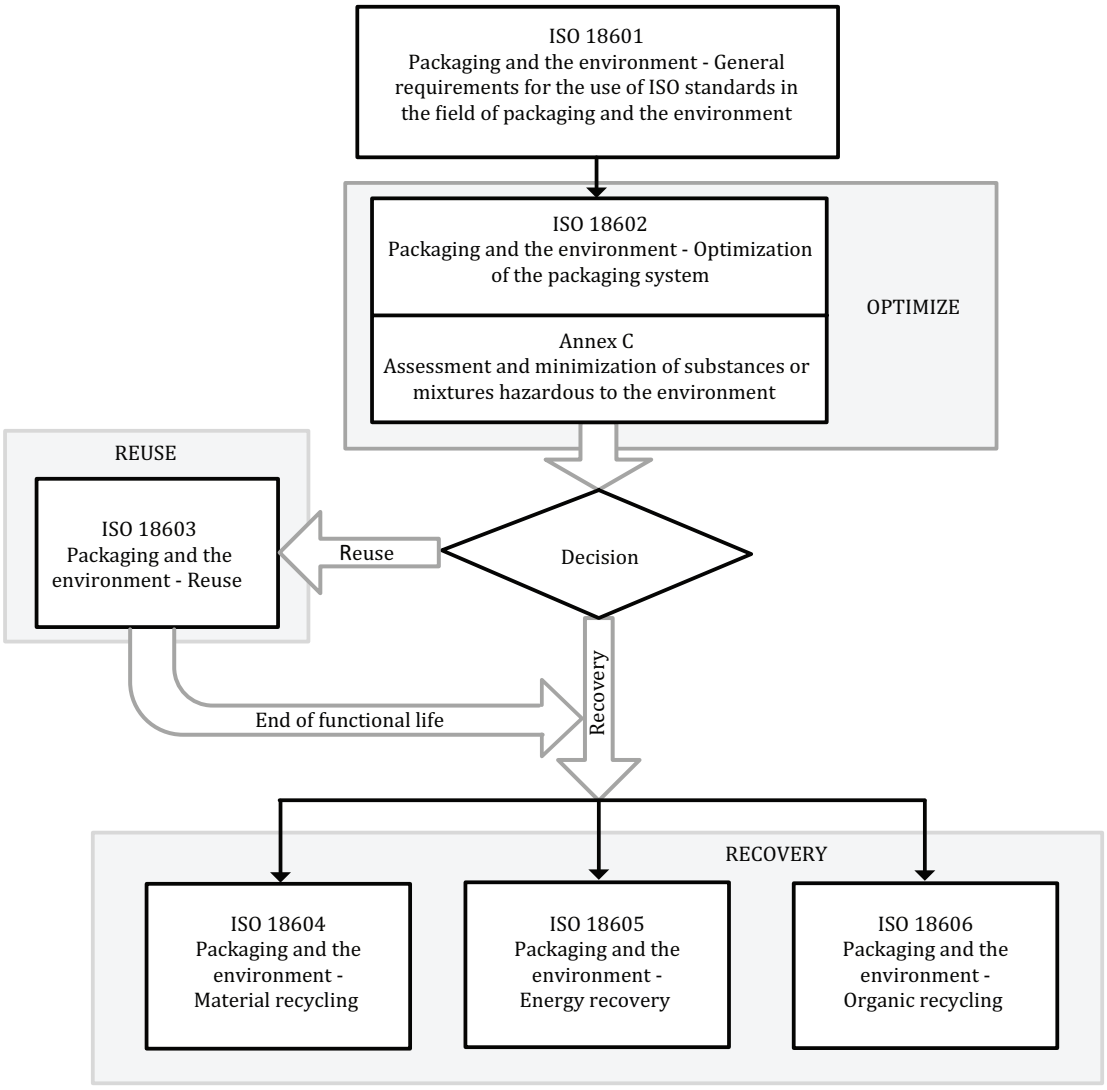

Figure 1 — Relationship of the Packaging and environment standards

Packaging and the environment — General requirements for the use of ISO standards in the field of packaging and the environment

1 Scope

This International Standard specifies requirements and procedures for the other International Standards in this series on packaging and the environment: ISO 18602, ISO 18603, ISO 18604, ISO 18605, and ISO 18606.

This International Standard is applicable to a supplier responsible for placing packaging or packaged goods on the market.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18602, *Packaging and the environment — Optimization of the packaging system*

ISO 18603, *Packaging and the environment — Reuse*

ISO 18604, *Packaging and the environment — Material recycling*

ISO 18605, *Packaging and the environment — Energy recovery*

ISO 18606, *Packaging and the environment — Organic recycling*

ISO 21067, *Packaging — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21067 and the following apply.

3.1
chemical recovery
process to recover valuable chemical substances by chemical treatment of used packaging by hydrolysis, glycolysis, methanolysis, catalytic reaction, thermal reaction, and other chemical processes - process to substitute used packaging for natural resources

Note 1 to entry: See ISO/TR 16218[1)].

3.2
combustion
incineration
oxidation reaction covering both organic materials and metals

Note 1 to entry: Modern incineration plants are able to generate and recover energy efficiently. The term "incineration" in normal usage means the process of reducing solid waste volume by combustion with or without energy recovery. For the purpose of this International Standard, they refer only to the incineration process with energy recovery.

[SOURCE: ISO 18605:2012, definition 3.9]

1) To be published.

3.3
composting
aerobic process designed to produce compost

[SOURCE: ISO 18606:2012, definition 3.2]

3.4
energy recovery
production of useful energy through direct and controlled combustion

Note 1 to entry: Solid-waste incinerators producing hot water, steam or electricity are a common form of energy recovery.

[SOURCE: ISO 15270:2008, definition 3.11]

3.5
material recycling
reprocessing, by means of a manufacturing process, of a used packaging material into a product, a component incorporated into a product, or a secondary (recycled) raw material, excluding energy recovery and the use of the product as a fuel

Note 1 to entry: References to recycling in this document refer to material recycling. Other options for recycling or recovery are not considered in this document.

[SOURCE: ISO 18604:2012, definition 3.3]

3.6
organic recycling
through microbial activity, the controlled biological treatment of the biodegradable components of used packaging which produce compost and, in the case of anaerobic digestion, also methane

Note 1 to entry: Landfilling is not considered as organic recycling.

[SOURCE: ISO 18606:2012, definition 3.9]

3.7
packaging
<product> any product to be used for the containment, protection, handling, delivery, storage, transport and presentation of goods, from raw materials to processed goods, from the producer to the user or consumer, including processor, assembler or other intermediary

[SOURCE: ISO 21067:2007, definition 2.1.1]

3.8
packaging
<operation> operations involved in the preparation of goods for containment, protection, handling, delivery, storage, transport and presentation of goods, from raw materials to processed goods, from the producer to the user or consumer

Note 1 to entry: The term includes preservation, packing, marking and unitization.

[SOURCE: ISO 21067:2007, definition 2.1.2]

3.9
pack, noun
package, noun
packaging (3.7) and its contents

[SOURCE: ISO 21067:2007, definition 2.1.3]

3.10
pack
package
create a package (3.9)

[SOURCE: ISO 21067:2007, definition 2.1.4]

3.11
packaging component
part of packaging that can be separated by hand or by using simple physical means

3.12
packaging constituent
part from which packaging or its components are made and which cannot be separated by hand or by using simple physical means

3.13
packaging optimization
process for the achievement of a minimum adequate weight or volume (source reduction) for meeting the necessary requirements of primary or secondary or transport packaging, when performance and user/consumer acceptability remain unchanged or adequate, thereby reducing the impact on the environment

[SOURCE: ISO 18602:2012, definition 3.1]

3.14
packaging system
complete set of packaging for a packaged good, encompassing one or more of the following that are applicable (depending on the packaged goods): Primary packaging, Secondary packaging, Tertiary (distribution or transport) packaging

[SOURCE: ISO 18602:2012, definition 3.6]

3.15
packaging waste
packaging that has been used by the final consumer or end user and which is discarded for final disposal and is not intended for reuse or recovery

3.16
primary packaging
packaging (3.8) designed to come into direct contact with the product

[SOURCE: ISO 21067:2007, definition 2.2.2]

3.17
recyclable
characteristic of a product, packaging or associated component that can be diverted from the waste stream through available processes and programs and can be collected, processed and returned to use in the form of raw materials or products

[SOURCE: ISO 14021:1999, usage of term 7.7.1]

3.18
recycling process
physical or chemical process which converts collected and sorted used packaging, together in some instances with other material, into secondary (recycled) raw materials, products or substances, excluding energy recovery and the use of the product as fuel

[SOURCE: ISO 18604:2012, definition 3.5]

3.19
reuse
operation by which packaging is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market enabling the packaging to be refilled

Note 1 to entry: Non-reusable items that support packaging reuse, such as labels or closures, are considered to be part of that packaging.

[SOURCE: ISO 18603:2012, definition 3.1]

3.20
secondary packaging (group packaging)
packaging (3.8) designed to contain one or more primary packaging together with any protective materials where required

[SOURCE: ISO 21067:2007, definition 2.2.3]

3.21
substances hazardous to the environment
any substances classified as presenting an environmental hazard according to the UN Globally Harmonized System for Classification and Labeling of Chemicals and its amendments (GHS), 3rd revised edition, Part 4, whilst meeting the criteria of labeling with the environmental hazard pictogram

Note 1 to entry: This is a general classification of substances hazardous to the environment and cannot be taken as specifically relating to substances used in packaging.

[SOURCE: ISO 18602:2012, definition 3.12]

3.22
supplier
entity responsible for placing packaging or packaged goods on the market

Note 1 to entry: The term "supplier" in normal usage can relate to various points in a supply chain. For the purpose of this document it relates to any point in the supply chain where a transaction relating to packaging or packaged goods takes place.

3.23
tertiary packaging
distribution packaging
transport packaging
packaging (3.8) designed to contain one or more articles or packages, or bulk material, for the purposes of transport, handling and/or distribution

[Adapted from ISO 21067:2007, definition 2.2.4]

3.24
used packaging
packaging that has been used by the final consumer or end user and which is destined for reuse or recovery

4 Rationale and methodology — General Principles

4.1 Purpose

This 'umbrella' standard explains which standards are needed to demonstrate that the packaging has been optimized in terms of source reduction, is capable of being re-used (where applicable), recovered, and that the packaging can be handled appropriately and safely in recovery and end-of-life treatment.

The supplier shall select the appropriate assessment procedures for any particular packaging taking account of functional requirements of the packaging, including safety, hygiene and consumer/user acceptance of the packaged goods.

This International Standard defines the interrelationships within this family of ISO standards. These standards will help define whether the selected packaging has been optimized by source reduction and whether the packaging needs to be modified to ensure that it can be reused, if applicable, and recovered after use.

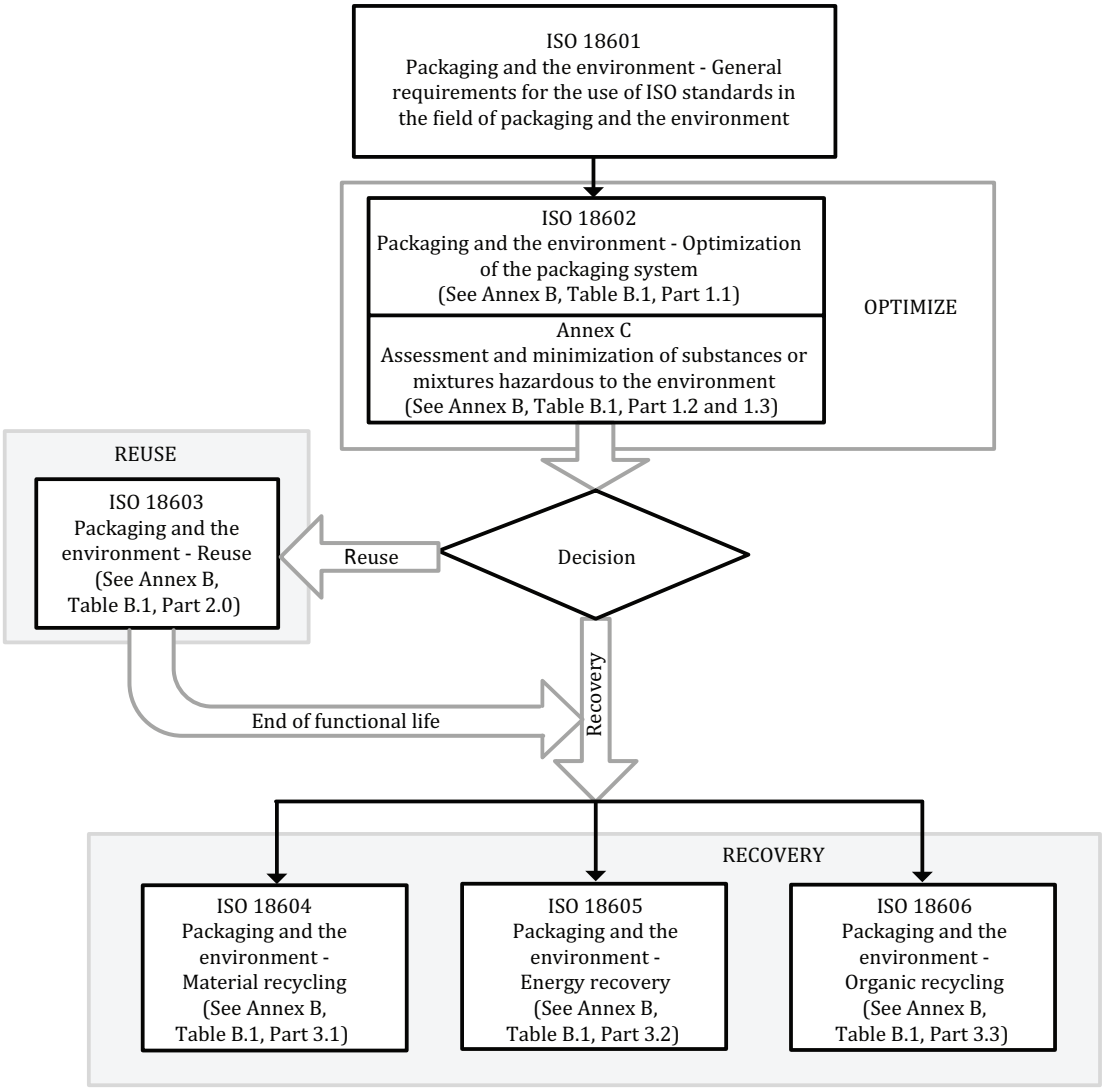

Figure 2 — ISO standards on packaging and the environment with Annex B reference numbers

4.2 General approach

This International Standard is an umbrella standard that defines the interrelationships of ISO 18602 through ISO 18606. As the starting point to follow the assessment process, the selected packaging shall meet the requirements of ISO 18602. To claim that the selected packaging is intended to be reused, it shall meet the requirements of ISO 18603. All packaging shall meet the requirements of one or more of the other standards: ISO 18604, ISO 18605 or ISO 18606.

Figure 2 shows the assessment process for any particular packaging (3.8). The selection includes identification of whether the packaging is intended to be reused or recovered.

4.3 Levels of application

These standards can be applied to components of packaging, or to any combination of primary, secondary and tertiary packaging.

4.4 Assessment of environmental impact of the four heavy metals and other substances hazardous to the environment in packaging

The assessment procedures regarding the environmental impact of the presence of the four heavy metals and other substances hazardous to the environment in packaging are to be found in ISO 18602.

NOTE Limits to heavy metals and other substances hazardous to the environment can be found in national or regional regulations.

5 Requirements

5.1 Selection of appropriate assessment procedures

5.1.1 The supplier shall ensure that the applicability of the relevant standards listed in Figure 2 has been assessed in relation to packaging or packaged goods placed on the market, taking into account their intended use and the basic functions of packaging such as those listed in Annex A.

ISO 18602, *Packaging and the environment — Optimization of the packaging system* is applicable to all packaging.

For reusable packaging, ISO 18603, *Packaging and the environment — Reuse* shall be used.

All packaging shall meet the requirements of one or more of the recovery standards:

— ISO 18604, *Packaging and the environment — Material recycling*;

— ISO 18605, *Packaging and the environment — Energy recovery*;

— ISO 18606, *Packaging and the environment — Organic recycling*.

The supplier should, as far as practical, avoid disruption or impediments to existing recovery systems.

5.2 Heavy metals and other substances hazardous to the environment

The supplier shall ensure that the presence of the four heavy metals or other substances hazardous to the environment has been assessed in accordance with ISO 18602, with reference to the guidance provided in Annex C.

5.3 Documentation of assessment data

Records of assessments, together with relevant supporting documents, undertaken to fulfill the requirements 5.1 and 5.2 shall be produced.

Records should be retained by the supplier for a period of time consistent with the entity's record retention policy.

Annex A
(informative)

Partial list of the functions packaging may perform

Packaging may be designed to provide a number of functions such as:

Table A.1 — Functions to be provided by packaging

Containment	— Containing goods in usable quantities
Protection	— Increasing shelf life
	— Preventing breakage (mechanical protection)
	— Preventing contamination, tampering and theft
	— Preventing spoilage
	— Providing a barrier
Handling/Transport	— Point of sale display
	— Provision of consumer units
	— Provision of retail and transport units
	— Transport from producer to user
Storage	— Safe storage of goods in warehouse, depot, retail outlet or by the user
Convenience	— Portioning
	— Product preparation and serving
Information	— Contact information
	— Description of product
	— End of life management
	— Legally required information about the product and packaging
	— List of ingredients
	— Nutritional and storage data
	— Opening instructions
	— Product identification
	— Product preparation and usage
	— Promotional messages and branding
	— Safety warnings
Presentation	— Identify the product
	— Identify the brand
	— Product features & benefits
	— Promotes the properties of the product

Annex B
(informative)

An example of a form for suppliers to use for indicating that the requirements of these standards have been met

Table B.1 — Example form

Packaging identification		**Assessment reference**	
Identification of principal materials used			
Part 1 Summary of assessment			
Standard[a]	**Assessment requirement**	**Yes/No**	**Note**
1.1 Optimization of the packaging system	ensure the optimum amount of material in the packaging (ISO 18602)		
1.2 The four heavy metals	ensure that components have been assessed and meet applicable limits – ISO 18602, Annex C		
1.3 Substances hazardous to the environment	ensure that components have been assessed and meet applicable limits – ISO 18602, Annex C		
2.0 Reuse	ensure reusability per ISO 18603		
3.1 Material recycling	ensure recyclability per ISO 18604		
3.2 Energy recovery	ensure energy recoverability per ISO 18605		
3.3 Organic recycling	ensure packaging recoverable by organic recycling per ISO 18606		
NOTE ISO 18601 requires affirmative responses to parts 1.1, 1.2, 1.3. and to at least one of 3.1; 3.2; 3.3. Where packaging is intended for reuse then part 2.0 also requires an affirmative response.			
Part 2 Statement of meeting the requirement of ISO 18601			
In light of the assessment results recorded in part I above, this packaging meets the requirements of ISO 18601. Signed on behalf of (Name and address of supplier) Signature: Position: Date:			
[a] Numbering in the “standards” column refers to Figure 2.			

Bibliography

[1] A Global Language for Packaging and Sustainability — Global Packaging Project — report. http://globalpackaging.mycgforum.com/allfiles/GPP_FinalReport_170610.pdf

[2] EN 13193, *Packaging — Packaging and the environment — Terminology*

[3] EN 14182, *Packaging — Terminology — Basic terms and definitions*

[4] ISO 14021:1999, *Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)*

[5] EN 13427, *Packaging — Requirements for the use of European Standards in the field of packaging and packaging waste*

[6] ISO/TR 16218[2)], *Packaging and the environment — Processes for chemical recovery*

[7] ISO/TR 17098[3)], *Packaging material recycling — Report on substances and materials which may Impede recycling*

[8] ISO 9001, *Quality management systems — Requirements*

[9] ISO 14001, *Environmental management systems — Requirements with guidance for use*

2) To be published.

3) To be published.

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